Frequently Asked Questions on UL 300 Systems and Class K Extinguishers

1. NFPA and FEMA have always promoted extinguishers as "your first line of defense" in a fire situation. With regard to commercial kitchen cooking hazards, why are placards now required to be posted above class "K" extinguishers stating the cooking appliance fire suppression system is to be activated prior to using the portable fire extinguisher?

   Answer: In recent years, the development of high-efficiency cooking appliances that employ high-energy input/output rates, as well as the widespread use of vegetable oils having high auto-ignition temperatures, results in a fire at the onset of ignition, already being too hot! Portable extinguishers have proven to be extremely effective but they cannot shut down the fuel source; therefore, after their discharge duration, the appliance may not have been cooled effectively enough to prevent reflash. The effective way to extinguish this type of fire is to REMOVE ITS HEAT SOURCE by activating the commercial kitchen pre-engineered suppression system. This action provides elimination of the fuel source (gas valve or electric power off) and then blankets the hot cooking oil with thick foam produced by the agent contained in the extinguishing system. Activating the system FIRST places both of these extinguishing initiatives into motion. The portable extinguisher can then be used as follow-up in the event it is needed. (For additional information refer to NFPA-10 and NFPA-96)

2. Statistics prove commercial kitchen pre-engineered fire suppression systems to be very reliable and successful. If this is the case, WHY must I still provide a portable extinguisher for these hazards?

   Answer: Studies conducted by National Association of Fire Equipment Distributors found commercial kitchen pre-engineered fire suppression systems to be 95% reliable and successful in suppressing kitchen cooking hazard fires. Of the 5% found not to have extinguished the fire, improper installation or tampering was determined the cause.

   Having the extinguisher available in the event of a system failure is essential and both NFPA-10 and NFPA-96 mandate their requirement. Also, the extinguisher can be utilized in the unlikely event grease spills causing the fire to spread outside the hazard area of protection. If cooking appliances are moved for any reason outside such parameters of coverage or should the fire originate as a result of a cooking media spill beyond the surface of the appliance, having a K class extinguisher readily available is an important fire protection consideration. (For additional information refer to NAFED published reports, NFPA-10 and NFPA-96)

3. Is a commercial kitchen pre-engineered fire suppression system required to protect the cooking hazard located in my church, town hall, meeting facility or other similar occupancy?

Answer: NFPA 96, Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations, dictates that cooking equipment used in processes producing smoke or grease-laden vapors shall be equipped with an exhaust system that complies with all the equipment and performance requirements of this (NFPA 96) standard. Most states have adopted NFPA 96 through their Building and Fire Prevention Codes. Compliance of these codes and standards includes the installation of a Commercial Kitchen Cooking Pre-engineered Fire Suppression System to protect the hood(s), duct(s) and cooking appliance(s). Facility size or cooking capacity is NOT a factor and does not negate this requirement. These types of occupancies often hold socials, fund raising events and dinners that, as part of the event, utilize the cooking facility. Cooking isn't limited to boiling water, making soup or warming things up. In many of these situations the food being served requires frying, broiling, sautéing, etc. which produce smoke or grease laden vapors and increases the potential of a kitchen cooking appliance fire in these occupancies. (For additional information refer to NFPA-96 and your local Building and Fire Prevention Codes)

4. For years, having a 40B:C rated sodium bicarbonate extinguisher in my cooking area was acceptable. Why am I now being told to replace it with a new class "K" rated fire extinguisher?

Answer: As stated in question 1, the fire hazard has simply changed and become more difficult to control. While the old 40B:C sodium bicarbonate fire extinguisher requirement existed for many years, it is no longer suitable for addressing many of the newer forms of cooking appliances and cooking media formulations commonly found in use today. Dry chemical extinguishers are not effective in removing the tremendous heat that is generated by this type of hazard. The fire can easily reignite or won't be extinguished at all. Leaving the BC sodium bicarbonate extinguisher in place provides one a FALSE sense of fire safety. The new class "K" rated fire extinguishers are much better suited to properly handle and address the special cooking appliance fire hazards found in commercial kitchens. (For additional information refer to NFPA-10, 17/17A, 96 and ANSI/UL-711 test standard).

5. If a small fire breaks out in or on the surface of my cooking appliance(s), can I first try to use the portable fire extinguisher prior to activating the commercial kitchen pre-engineered fire suppression system?

Answer: Kitchen fires have a long history of quickly spreading and getting out of control. Any delay in activation of the commercial kitchen pre-engineered fire suppression system, caused by first attempting to use a portable extinguisher, can give a fire all the advantage it needs to go beyond the capability and limitations of the fire suppression system. This type of fire can quickly engulf the grease removal filters, hood plenum and ducts. Since these areas are somewhat out of sight to the chef, it would be possible for a fire to survive in these areas and grow without his/her knowledge. Activating the

commercial kitchen pre-engineered fire suppression system FIRST assures the fuel source has been eliminated, as well as the application of extinguishing agent being applied to the cooking appliance(s), hood(s) and duct(s) providing for fire extinguishments. The extinguisher can then be used as follow-up in the event it is needed.

6. Since there are multiple sizes of Class K extinguishers, and NFPA-10 doesn't address any difference in regard to size and rating, how can I, as a consumer of the AHJ, know which size class K extinguisher would be adequate for the commercial kitchen hazards or to meet the intent of the local Building or Fire Code?

Answer: Fire extinguishers classified for use on Class K hazards are not required to have a number preceding the classification letter. Therefore, any extinguisher rated for Class K hazards is acceptable from the standpoint of satisfying the code. One needs however, also take into consideration the size of the hazard as cooking lines and cooking appliances vary widely. Codes require the bigger the hazard, the bigger the extinguisher or multiple extinguishers one must consider. As with other class rated extinguishers, Class K rated extinguishers come in smaller and larger sizes. In hazards where multiple fryers, wood burning appliances, or the cooking hazard is very large, multiple extinguishers or larger Class K rated extinguishers may be required by code. (for additional information refer to IFC sections 904.11.5 through 904.11.5.2) For example, one 6-liter (1.5 gallon) Class K extinguisher should be provided for up to four fryers of 80 pounds (36.3 kg) maximum capacity each. For every additional group of four fryers having a maximum cooking medium capacity of 80 pounds (36.3kg) each: One additional Class K portable fire extinguisher of a minimum 1.5 gallon (6 liter) capacity shall be provided. Solid fuel cooking appliances require a 6 liter (1.5 gallon) extinguisher as per NFPA 10 or one 2.5 gallon (9 liter) extinguisher or two 1.5 gallon (6 liter) Class K extinguishers as per the IFC. The advantage of the larger size unit is having more wet chemical agent available to control/extinguish a fire should one occur. Also, since most kitchen areas will contain Class A & B hazards, the larger Class K extinguisher may prove to be of benefit controlling a fire of that nature should the fire spread outside the cooking area. (For additional information refer to International Fire Code (IFC), NFPA-10 and Manufacturers' Training Manuals)

IN ALL CASES ABOVE, fire extinguishers not only provide for fire fighting capabilities, but can also be used for emergency egress situations. If a fire were to occur that obstructed an egress path, the extinguisher may prove an effective tool in clearing a path of egress allowing for successful evacuation.

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